

**IN THE SPECIFICATIONS**

Please substitute new pages 1 and 2 for original pages 1 and 2 as follows:

**HOT KNIFE CUTTER**

1.

**Technical Field**

This invention pertains to methods and apparatus for cutting tire ply stock and the like.

**Background Art**

Different apparatus and methods have been utilized in order to provide cut-to-length sections of ply stock used for building tires. In U.S. Patent Nos. 3,429,490 and 3,641,855, apparatuses which utilize plunging knives are disclosed. In these apparatuses, a pair of knives is used to transpierce the ply stock at the center of the ply. Then each knife is moved to an opposite lateral edge of the ply stock. The cuts are made from the center outward in order to avoid crushing the lateral edges of the ply stock. A disadvantage of these apparatuses is that the two knives must cut between the same pair of adjacent cords.

In U.S. Patent No. 3,789,712 a single knife blade is used. The blade is moved into a first edge of the ply which is lifted from the conveyor up against a stock support and held there by the oblique cutting edge while the knife blade makes its cutting stroke. This is an attempt to cut the ply without plunging the knife or using two cutters. A disadvantage of this type of cutter is that the lateral edge of the ply stock is subjected to an inwardly directed cut and damage to the edge may occur.

U.S. Patent No. 4,156,378 discloses an apparatus which uses a circular rotatable disc cutter to engage a hard surface of an anvil and then roll on the surface to part the ply stock between a pair of cords. Again, the lateral edge is subjected to an inwardly directed cut.

The present invention provides a method and apparatus for severing ply stock between adjacent cords without the use of two separate knife blades in a way that does not damage lateral edges of the ply stock.

**Disclosure of Invention**

In accordance with the practice of the present invention, there is provided a new and improved method and apparatus for severing a belt package and the like to a predetermined length at a desired bias angle which employs a heated knife blade to facilitate clean cutting of the belt package between adjacent cords.

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According to one aspect of the invention there is provided a method for cutting an associated the ply stock along a cut line using a cutting apparatus comprising a knife assembly, means for moving the knife assembly normally toward and away from the ply stock, and means for the traversing the knife assembly between a first lateral edge and a second lateral edge of the ply stock, the knife assembly including a blade having a cutting portion including a leading point, a leading edge and a the trailing edge, the trailing edge

2.

having an associated length, the ply stock having spaced first and second lateral edges, the method comprising the steps of:

- a. moving the knife assembly toward the ply stock to insert the leading point of the knife blade into the ply stock at an insertion point spaced a distance from the first lateral edge wherein the distance is less than or equal to length in order to back-cut the ply stock from the insertion point to the first lateral edge with the trailing edge of the blade; and,
- b. traversing the knife assembly across the ply stock toward the second lateral edge in order to cut the ply stock from the insertion point to the second lateral edge with the leading edge of blade and provide severance of the ply stock from the first lateral edge to the second lateral edge.

In accordance with another aspect of the invention there is provided a knife assembly for use in a cutting apparatus for cutting an associated ply stock along a cut line of an anvil, the knife assembly including a blade having a cutting portion including a leading point, a leading edge and a trailing edge, the knife assembly comprising:

- a. a leading edge of the blade including a concave portion adjacent the leading point for urging the ply stock towards anvil; and,
- b. the trailing edge of the blade having a generally linear profile.

According to a further aspect of the invention there is provided a cutting apparatus for cutting an associated ply stock along a cut line between first and second lateral edges, the apparatus comprising a knife assembly, means for the moving the knife assembly toward and away from the ply stock, and means for traversing the knife assembly between the first and second lateral edges of the ply stock, the knife assembly including a blade having a cutting portion including a leading point, a leading edge and a trailing edge, the trailing edge having an associated length, the cutting apparatus comprising the knife assembly having a home position wherein the leading point of the blade is directly above an insertion point of an associated ply

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stock and means for traversing the knife assembly between the first and second lateral edges of the ply stock, the knife assembly including a blade having a cutting portion including a leading point, a leading edge and a trailing edge, the trailing edge having an associated length, the cutting apparatus comprising:

the knife assembly having a home position wherein the leading point of the blade is directly above an insertion point of an associated ply stock and wherein a distance between the first lateral edge of the associated ply stock and the insertion point is less than or equal to the associated length of the trailing edge.

One advantage of the present invention is that the ply stock can be cut between adjacent cords without severing either cord.

Another advantage of the present invention is that the ply stock can be severed without damaging either lateral edge of the ply stock.

Still other benefits and advantages of the invention will become apparent to those skilled in the art upon a reading and understanding of the following specification.

#### BRIEF DESCRIPTION OF DRAWINGS:

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C3  
Please replace lines 27 and 28 on page 3, with the following:  
lateral edge 22. The apparatus 10 also includes an anvil 26 for supporting the ply stock S in the immediate area below a cut line A-A shown in Figures 3 and 8. The embodiment of apparatus 10 is shown in Figs. 1 and 2,

C4  
Please correct the sentence on page 5, lines 19, 20, and 21 by substituting  
numeral 2 for numeral 3 after "Figure" as follows:

moved away from the anvil 26 in preparation for a successive cutting operation. The knife assembly 14 is returned to a "home" position 48 as shown in Figure 2 where the blade 50 is heated again before beginning the next cut.